

Applicant: James A. Proctor, Jr.
Application No.: 10/767,843

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) An apparatus for controlling timing of a reverse link signal from a subscriber unit comprising:
 - a receiver that receives a plurality of reverse link signals, wherein each said signal includes a common code and unique orthogonal code;
 - a correlator coupled to the receiver that associates a metric with each of the received reverse link signals;
 - a selector coupled to the correlator that selects the received reverse link signal associated with a best metric; and
 - a timing controller coupled to the selector that determines a gross timing offset of the selected reverse link signal to align the selected reverse link signal with reverse link signals from other subscriber units using the common code with a common phase.

2. (Original) The apparatus according to Claim 1 wherein the timing controller determines a fine timing offset and causes a fine phase adjustment of the common code of the selected reverse link signal.

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3. (Original) The apparatus according to Claim 1 wherein the timing controller provides the gross timing offsets to the subscriber unit in the form of a timing command.

4. (Original) The apparatus according to Claim 1 wherein the timing controller provides the gross timing offsets to the subscriber unit in the form of a timing report.

5. (Previously presented) The apparatus according to Claim 1 wherein the selector determines whether a reception quality criterion is met and, if met, causes the timing controller to align an unaligned reverse link signal from the given subscriber unit with reverse link signals from other subscriber units.

6. (Original) The apparatus according to Claim 5 wherein the reception quality criterion includes at least one of the following: (a) the metric of an unaligned reverse link signal exceeds a threshold for a predetermined timespan, (b) the metric of an un-aligned reverse link signal exceeds a threshold relative to the best metric for a predetermined timespan, (c) the best metric drops below an absolute metric, and (d) the metric of an un-aligned reverse link signal exceeds an absolute metric.

7. (Original) The apparatus according to Claim 6 wherein the metrics include at least one of the following: (a) power, (b) SNR, (c) variance of the power, (d) variance of the SNR, (e) relative ratio of the power, SNR, or variance of two paths, (f) bit error rate, and (g) energy per chip divided by the interference density (Ec/Io).

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8. (Original) The apparatus according to Claim 1 further including a power controller that determines a power level of the aligned reverse link signal and provides feedback of the power level to the subscriber unit.

9. (Original) The apparatus according to Claim 8 wherein the power controller provides the power level to the subscriber unit in the form of a power command.

10. (Original) The apparatus according to Claim 8 wherein the power controller provides the power level to the subscriber unit in the form of a power report.

11. (Previously presented) A method of controlling timing of a signal from a subscriber unit comprising:

receiving a plurality of reverse link signals, wherein each signal includes a common orthogonal long code and unique orthogonal code;

associating a metric with each of the received reverse link signals;

selecting the received reverse link signal associated with a best metric; and

determining a gross timing offset of the selected reverse link signal to align the selected reverse link signal with reverse link signals from other subscriber units using the common code with a common phase.

12. (Original) The method according to Claim 11 further including determining a fine timing offset and causing a fine phase adjustment of the common code of the selected reverse link signal.

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13. (Original) The method according to Claim 11 further including providing gross timing offsets to the subscriber unit in the form of a timing command.

14. (Original) The method according to Claim 11 further including providing the gross timing offsets to the subscriber unit in the form of a timing report.

15. (Previously presented) The method according to Claim 11 further including determining whether a reception quality criterion is met and, if met, causing an orthogonal timing controller to align an un-aligned reverse link signal from the given subscriber unit with reverse link signals from other subscriber units.

16. (Original) The method according to Claim 15 wherein the reception quality criterion includes at least one of the following: (a) the metric of an un-aligned reverse link signal exceeds a threshold for a predetermined timespan, (b) the metric of an un-aligned reverse link signal exceeds a threshold relative to the primary path for a predetermined timespan, (c) the metric of the primary path drops below an absolute metric, and (d) the metric of an un-aligned reverse link signal exceeds an absolute metric.

17. (Original) The method according to Claim 16 wherein the metrics include at least one of the following: (a) power, (b) SNR, (c) variance of the power, (d) variance of the SNR, (e) relative ratio of the power, SNR, or variance of two paths, (f) bit error rate, and (g) energy per chip divided by the interference density (Ec/Io).

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18. (Original) The method according to Claim 11 further including determining a power level of the aligned reverse link signal and providing feedback of the power level to the subscriber unit.

19. (Original) The method according to Claim 18 wherein providing the power level to send to the subscriber unit includes transmitting the power level feedback to the subscriber unit in the form of a power command.

20. (Original) The method according to Claim 18 wherein providing the power level to send to the subscriber unit includes transmitting the power level feedback to the subscriber unit in the form of a power report.

21. Canceled.

22. (Withdrawn) A subscriber unit comprising:
circuitry configured to communicate in a first and a second mode;
the circuitry configured in the first mode to communicate with a base station using a first CDMA code assigned to the subscriber unit and not to other subscriber units; and

the circuitry configured in the second mode to communicate with the base station using a second CDMA code used by a first plurality of subscriber units in a first time slot and the first plurality of subscriber units communicate in separate time slots; wherein the second mode is associated with high speed packet communication.

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23. (Withdrawn) The subscriber unit of claim 22 wherein the first CDMA code includes an orthogonal code and a PN code.

24. (Withdrawn) The subscriber unit of claim 23 wherein the orthogonal code is a Walsh code.

25. (Withdrawn) The subscriber unit of claim 22 wherein the second CDMA code includes an orthogonal code and a PN code.

26. (Withdrawn) The subscriber unit of claim 24 wherein the orthogonal code is a Walsh code.

27. (Withdrawn) The subscriber unit of claim 22 wherein power control information is communicated between the base station and the subscriber unit using the second code.

28. (Withdrawn) The subscriber unit of claim 22 wherein the communication using the first and second codes is on a reverse link.

29. (Withdrawn) A method comprising:
communicating in a first mode, by a subscriber unit; wherein in the first mode, the subscriber unit communicates with a base station using a first CDMA code assigned to the subscriber unit and not to other subscriber units; and
communicating in a second mode, by a subscriber unit; wherein in the second mode, the subscriber unit communicates with the base station using a second CDMA code in a first time slot used by a first plurality of subscriber units and the

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first plurality of subscriber units communicate in separate time slots; wherein the second mode is associated with high speed packet communication.

30. (Withdrawn) The method of claim 29 wherein the first CDMA code includes an orthogonal code and a PN code.

31. (Withdrawn) The method of claim 30 wherein the orthogonal code is a Walsh code.

32. (Withdrawn) The method of claim 29 wherein the second CDMA code includes an orthogonal code and a PN code.

33. (Withdrawn) The method of claim 32 wherein the orthogonal code is a Walsh code.

34. (Withdrawn) The method of claim 29 wherein power control information is communicated between the base station and the subscriber unit using the second code.

35. (Withdrawn) A base station comprising:
circuitry configured to communicate to a first and a second plurality of subscriber units;

the circuitry configured to communicate with each of the first plurality of subscriber units using a respective first CDMA code different from CDMA codes used by other subscriber units of the first plurality; and

the circuitry configured to communicate with the second plurality of

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subscriber units using a second CDMA code shared by the second plurality of subscriber units; wherein each of the second plurality of subscriber units is communicated with in a different time slot; wherein the second plurality of subscriber unit are communicating packet data for high speed operation.

36. (Withdrawn) The base station of claim 35 wherein the respective first CDMA codes include an orthogonal code and a PN code.

37. (Withdrawn) The base station of claim 36 wherein the orthogonal code is a Walsh code.

38. (Withdrawn) The base station of claim 35 wherein the second CDMA code includes an orthogonal code and a PN code.

39. (Withdrawn) The base station of claim 38 wherein the orthogonal code is a Walsh code.

40. (Withdrawn) The base station of claim 35 wherein power control information is communicated between the base station and the subscriber units using the second code.

41. (Withdrawn) The base station of claim 35 wherein the communication using the first and second codes is on a reverse link.